

IN THE CLAIMS:

1.-10. (Canceled)

11. (Currently Amended) A method, comprising:

providing a substrate having a metal layer comprised of copper formed thereabove;

performing a chemical mechanical polishing process on said layer of metal in the presence of a polishing slurry;

measuring at least a concentration of copper in said polishing slurry used during said polishing process after at least some of said polishing process has been performed, wherein said polishing slurry used during said polishing process is collected in a waste slurry reservoir, and said step of measuring at least a concentration of copper is performed on said slurry in said waste slurry reservoir;

and

determining a thickness of said layer of metal removed during said polishing process based upon at least said measured concentration of copper

12. (Original) The method of claim 11, further comprising adjusting at least one parameter of said polishing process based upon said calculated thickness of said layer of metal removed during said polishing process.

13. (Original) The method of claim 11, further comprising measuring a volume of said polishing slurry used during said polishing process.

14. (Original) The method of claim 13, further comprising calculating a thickness of said layer of metal removed during said polishing process based upon at least the measured volume of said polishing slurry used during said polishing operation.

15. (Original) The method of claim 13, further comprising calculating a thickness of said layer of metal removed during said polishing process based upon at least the measured volume of said polishing slurry used during said polishing operation and said measured concentration of said copper.

16. (Original) The method of claim 11, wherein measuring a concentration of copper comprises measuring a concentration of copper using a concentration monitor.

17. (Original) The method of claim 13, wherein measuring a volume of said polishing slurry used during said polishing process comprises measuring a volume of said polishing slurry used during said polishing process using a volumetric meter.

18. (Original) The method of claim 11, wherein said step of determining a thickness of said layer of metal removed during said polishing process comprises accessing a model comprised of data correlating said measured concentration of said material comprising said layer of metal and a thickness of a layer of material comprised of the same material as said layer of metal.

19. (Original) The method of claim 11, wherein said step of determining a thickness of said layer of metal removed during said polishing process comprises calculating a thickness of

said layer of metal removed during said polishing process based upon at least said measured concentration.

20. (Currently Amended) A method, comprising:

providing a substrate having a metal layer comprised of copper formed thereabove;

performing a chemical mechanical polishing process on said layer of metal in the presence of a polishing slurry;

measuring at least a concentration of copper in said polishing slurry used during said polishing process after at least some of said polishing process has been performed, wherein said polishing slurry used during said polishing process is collected in a waste slurry reservoir, and said step of measuring at least a concentration of copper is performed on said slurry in said waste slurry reservoir;
and

calculating a thickness of said layer of metal removed during said polishing process based upon at least said measured concentration of copper.

21. (Original) The method of claim 20, further comprising adjusting at least one parameter of said polishing process based upon said calculated thickness of said layer of metal removed during said polishing process.

22. (Original) The method of claim 20, further comprising measuring a volume of said polishing slurry used during said polishing process.

23. (Original) The method of claim 22, further comprising calculating a thickness of said layer of metal removed during said polishing process based upon at least the measured volume of said polishing slurry used during said polishing operation.

24. (Original) The method of claim 22, further comprising calculating a thickness of said layer of metal removed during said polishing process based upon at least the measured volume of said polishing slurry used during said polishing operation and said measured concentration of copper.

25. (Original) The method of claim 20, wherein measuring a concentration of copper comprises measuring a concentration of copper using a concentration monitor.

26. (Original) The method of claim 22, wherein measuring a volume of said polishing slurry used during said polishing process comprises measuring a volume of said polishing slurry used during said polishing process using a volumetric meter.

27. (Original) A method, comprising:

providing a substrate having a metal layer comprised of copper formed thereabove;

performing a chemical mechanical polishing process on said layer of metal in the presence of a polishing slurry;

measuring at least a concentration of copper in said polishing slurry used during said polishing process after at least some of said polishing process has been performed, wherein said polishing slurry used during said polishing process is collected in a waste slurry reservoir, and said step of measuring at least a

concentration of copper is performed on said slurry in said waste slurry reservoir;

and

determining a thickness of said layer of metal removed during said polishing process by
accessing a model comprised of data correlating said measured concentration of
copper and a thickness of a layer of copper.

28. (Original) The method of claim 27, further comprising adjusting at least one
parameter of said polishing process based upon said determined thickness of said layer of metal
removed during said polishing process.

29. (Original) The method of claim 27, wherein measuring a concentration of copper
comprises measuring a concentration of copper using a concentration monitor.

30. (Original) A method, comprising:

providing a substrate having a metal layer comprised of copper formed thereabove;

performing a chemical mechanical polishing process on said layer of metal in the
presence of a polishing slurry;

measuring a volume of said polishing slurry used during said polishing process after at
least some of said polishing process has been performed;

measuring a concentration of copper in said measured volume of polishing slurry,

wherein said polishing slurry used during said polishing process is collected in a

waste slurry reservoir, and said step of measuring at least a concentration of

copper and said step of measuring a volume of said polishing slurry is performed

on said slurry in said waste slurry reservoir; and

calculating a thickness of said layer of metal removed during said polishing process based upon at least said measured volume of polishing slurry and said measured concentration of copper.

31. (Original) The method of claim 30, further comprising adjusting at least one parameter of said polishing process based upon said calculated thickness of said layer of metal removed during said polishing process.

32. (Original) The method of claim 30, wherein measuring a volume of polishing slurry used during said polishing process comprises collecting said polishing slurry used during said polishing process in a reservoir having a known value.

33. (Original) The method of claim 30, wherein measuring a concentration of copper comprises measuring a concentration of copper using a concentration monitor.

34. (Original) The method of claim 30, wherein measuring a volume of said polishing slurry used during said polishing process comprises measuring a volume of said polishing slurry used during said polishing process using a volumetric meter.

35.-56. (Canceled)